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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/790,959	03/01/2004	Takemori Takayama	03773/LH	2156

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EXAMINER	
YEE, DEBORAH	

ART UNIT	PAPER NUMBER
1742	

DATE MAILED: 08/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/790,959	TAKAYAMA, TAKEMORI	
	Examiner	Art Unit	
	Deborah Yee	1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 June 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12,20-23 and 25-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4-12,20 and 25-27* is/are rejected.

7)☒ Claim(s) *2,3 and 21-23* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 November 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *6-30-06;3-01-04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: *IDS 8-2-06;9-28-05;11-02-04*.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1,4-12, 20 and 25-27 have been considered but are moot in view of the new ground(s) of rejection.

Information Disclosure Statement

2. The information disclosure statement filed 6-30-06 has been considered by the examiner. Please provide serial No. for 2005/0241734, examiner could not find on palm system.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese patent 360005854.

4. The English abstract of JP'854 discloses a steel tool containing 1.2 to 1.35%C and 0.08 to 0.3%V which overlap with claimed steel alloy range of 0.5 to 1.5%C and 0.2 to 2%V, respectively. Moreover, similar to present invention, JP'854 steel has a quench hardened martensitic matrix with fine carbides at up to 1 microns (overlaps claim range

of 0.2 to 5 microns). Note that such overlap establishes a prima facie case of obviousness because it would be obvious for one skilled in the art to select the claimed ranges over the broader disclosure of the prior art since the same utility (rolling element with wear resistance) is taught.

5. Even though 0.4 to 4.0 vol% of carbides, nitrides, or carbonitrides,as recited by claim 1 is not taught by prior art, such would be expected since composition and quench hardening process limitation are closely met, and in absence of proof to the contrary.

6. Even though soluble carbide of 0.3 to 0.8% are the surface is not taught, such would be expected since composition, microstructure and carbide limitations are closely met, and in absence of proof to the contrary.

7. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over or Mitamura et al (US Patent 5,338,377).

8. Mitamura in claims1 to 4 of column 13-14 discloses a roller bearing steel containing 0.2 to 1% C and and 0.2 to 1% V, and overlaps with claimed steel alloy range of 0.5 to 1.5% C and 0.2 to 2%V, respectively. Also steel is subjected to carbonitriding and quench hardening to obtain carbonitrides in the range of less than 3 microns (overlaps claimed range of 0.2 to 5 microns) in an area range of 10 to 17%.

9. Even though 0.4 to 4.0 vol% of carbides, nitrides, or carbonitrides as recited by claim 1 is not taught by prior art, such would be suggested since a low area range of 10 to 17wt% is taught.

10. Even though soluble carbide of 0.3 to 0.8% are the surface is not taught, such would be expected since composition, microstructure and carbonitride limitations are closely met, and in absence of proof to the contrary.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. Claims 1,4 to 12, 20 and 25 to 27 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 to 9 of U.S. Patent No. 6413,328. Although the conflicting claims are not identical, they are not patentably distinct from each other because they both disclose a rolling element made from a steel alloy having a composition with the same constituents in overlapping wt% ranges. Moreover patent'328 steel has a martensitic surface with carbonitrides and/or

nitrides at 0.3 microns or less at 1 vol% or more which overlap with pending claim 1 reciting nitrides and carbonitrides at a diameter of 0.2 to 5 microns at 0.4 to 4 vol%. Also patented claim 1 recites cementite and retained austenite in hardened layer and hence meet claim 6. Patent '328, lines 15-22 inf column 17 teaches carburizing or carbonitriding at 800C or more followed by rapid quenching which meets heating at 900 to 1050C followed by rapid quenching as recited by pending claims 9 and 20. Pending claim 9 recites the rolling element to be a gear and meets claims 10 to 12 and 25 to 27. Although shot peening surface is not taught by patent'328, such is a conventional technique in producing gears to further harden surface and hence would be obvious to incorporate and productive of no new and unexpected results.

12. Even though a soluble carbon of 0.3 to 0.8% at the surface as recited by pending claim 1 is not taught by patent '328, such would be expected since composition, microstructure and nitride and carbonitride limitations are closely met, and in absence of proof to the contrary.

Allowable Subject Matter

13. Claims 2,3, and 21 to 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

14. The following is an examiner's statement of reasons for allowance: The art of record does not teach or suggest a rolling element, as claimed, containing 2 to 15% by

volume of cementite particles containing 2.5 to 10wt% Cr as an average composition dispersed in the martensite parent phase of the rolling contact surface layer

15. The art of record does not teach the method of producing a rolling element, as claimed, comprising the steps of subjecting steel to induction hardening by heating and quenching

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deborah Yee whose telephone number is 571-27211253. The examiner can normally be reached on monday-friday 6:00am-2:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Deborah Yee
Primary Examiner
Art Unit 1742

dt